Title	***Long Straight Section***			
Project Requestor	Greg Wiemerslage			
Date	3/21/08			
Group Leader(s)	P. DenHartog			
Machine or Sector Manager	Efim Gluskin			
Category	Accelerator hardware and Insertion Device Upgrades			
Content ID*	APS_1254431	Rev.	2	3/21/08 3:17 PM

*This row is filled in automatically on check in to ICMS. See Note [1]

Description:

Start Year (FY)	**2009**	**Duration (Yr)**	**3**

Objectives:

Design and prototype a long straight section for the Advanced Photon Source storage ring.

Benefit:

This would allow more than two 2.4 m long undulators or an undulator in excess of five meters in length in a single straight section. It would also enable the possibility of a superconducting undulator combined with a hybrid undulator.

Risks of Project: See Note [2]

NA at this phase.

Consequences of Not Doing Project: See Note [3]

If the proposed project is not undertakenthe options for undulators will be limited to the current configuration.

Cost/Benefit Analysis: See Note [4]

The APS has previously investigated options for increasing the active length for undulators. See http://www.aps4.anl.gov/operations/ops_www/APSOnly/LongStraightSection/LongStrai

ghtSection.html
Case 1 which increases the available space for an undulator vacuum to 8.51 m is seen as the most cost effective. Other cases result in significantly higher costs,

Description:

Design and fabricate and assemble the girders upstream and downstream of the undulator that implement the Case 1 design and design and fabricate a long ID vacuum chamber.

Funding Details

Cost: ($K)
Use FY08 dollars.

Year	AIP	Contingency
1	100	
2	200	
3	100	
4		
5		
6		
7		
8		
9		
Total	400	20%

Contingency may be in dollars or percent. Enter figure for total project contingency.

Effort: (FTE)
The effort portion need not be filled out in detail by March 28

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Effort (FTE)

Year	Mechanical Engineer	Electrical Engineer	Physicist	Software Engineer	Tech	Designer	Post Doc	Total
1	1				0.3	1		2.3
2	0.5				1	0.5		2
3	0.25				0.5	0.1		0.85
4								0
5								0
6								0

Notes:

[1] **ICMS**. Check in first revision to ICMS as a *New Check In*. Subsequent revisions should be checked in as revisions to that document i.e. C*heck Out* the previous version and C*heck In* the new version. Be sure to complete the *Document Date* field on the check in screen.

[2] **Risk Assessment.** Advise of the potential impact to the facility or operations that may result as a consequence of performing the proposed activity. Example: If the proposed project is undertaken then other systems impacted by the work
include ... (If no assessment is appropriate then enter NA.)

[3] **Consequence Assessment.** Advise of the potential consequences to the facility or to operations if the proposal is not executed. Example: If the proposed project is not undertaken then ____ may happen to the facility. (If no assessment is appropriate then enter NA.)

[4] **Cost Benefit Analysis.** Describe cost efficiencies or value of the risk mitigated by the expenditure. Example: Failure to complete this maintenance project will result in increased total costs to the APS for emergency repairs and this investment of ___ will also result in improved reliability of ____. (If no assessment is appropriate then enter NA.)